

100-117557-20020-2

USSR/General Division - General Problems. Philosophy.
Methodology.

A-1

Abs Jour : Ref Zhur - Biologiya, No 1, 1957, 14.

Author : V.N. Timofeyeva

Inst :

Title : Teachings of I.M. Sechenov on Substantive Thought as a
Reflection of Reality.

Orig Pub : Uch-zap. Mosk. Obl. ped. in-ta, 1955, 29, 119-130

Abst : The role played by the works of I.M. Sechenov in the development of materialistic psychology is examined in the work entitled "Impression and Reality" (1895). On the basis of the concept that "the indispensable conviction of the existence of an external world is inherent in every human being", he proves the correlation of sensory impressions and reality by means of an analysis of visual impressions. In his work "Substantive Thought and Reality" (1892) Sechenov analyzes the problem of the connections

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Abs Jour : Ref Zhur - Biologiya, No 1, 1957, 14.

between separate links of a complete impression which determine its inner meaning. Thanks to these connections, the impressions which are received are transformed into a sensory thought expressed by a tri-member suggestion which consists of the object, impression, and connection. The problem as to what extent the connections and relations which we sense resemble reality and to what degree they are the products of our mind Sechenov solves by the example of the psychology of a child, and comes to the conclusion that the receiving organ does not create but only borrows from reality all the elements of the complex impressions which are called links. He attaches particular significance to muscular sensation. In a talk "Substantive Thought from a Physiological Point of View" delivered at the 19th congress of naturalists (1894) Sechenov presented the problem of the physiological substrata of

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Abs Jour : Ref Zhur - Biologiya, No.1, 1957, 14.

substantive thought. He defines the physiological equivalence of all the components of the tri-member suggestion. The link is not an object of the external world but is an expression of the relation between objects. The large number of variants Sechenov divides into three catagories: compatible existence, succession in time, and similarity. Sechenov repudiates "The inner vision" of idealistic psychology which seemingly informs us about relations between objects, and proposes in its stead muscular sensation. The author in detail characterises those principles which according to Sechenov must form the basis of psychology as a positive science with its own immutable laws. A number of philosophical and psychological expressions by V.I. Lenin which concur with the thoughts of I.M. Sechenov are cited.

Card 3/3

TIMOFEEVA, V.N.; ORLOVA, G.M.; TERNOVAYA, G.I.; TSAYUN, G.P.

Kinetics of dissolution of vitreous $AsSe_{1.5} Ge_x$, $AsS_{1.5} Ge_x$,
 $AsS_{2.5} Ge_x$ in sodium hydroxide solutions. Vest. LGU 18 no.10:
108-115 '63. (MIRA 16:8)

(Glass manufacture—Chemistry)
(Solution (Chemistry))

TIMOFEEVA, V.P.

Positive reactions to tuberculin in chickens with toxic
dystrophy. Veterinariia 42 no.8:32-34 Ag '65.
(MIRA 18:11)

1. Krasnoyarskaya nauchno-issledovatel'skaya veterinarnaya
stantsiya.

TIMOFEEV, A.N.; TIMOFEEVA, V.V.

Physical properties of dunite. Trudy Gor.-geol. inst. UFAN SSSR
no. 35:271-275 '60. (MIRA 14:1)
(Dunite)

L 10227-66 EWT(m)/EWA(d)/T/EWP(t)/EWP(z)/EWP(b)/EWA(c) IJP(c) JD/HW
ACC NR: AP5027606 SOURCE CODE: UR/0135/65/000/011/0035/0036

AUTHOR: Timofeyeva, V. P. (Engineer); Novokreshchenov, M. M. (Engineer)

ORG: none

TITLE: Weldability of EI559A alloy

SOURCE: Svarochnoye proizvodstvo, no. 11, 1965, 35-36

TOPIC TAGS: alloy, nickel alloy, heat resistant alloy, chromium containing alloy, aluminum containing alloy, welding, TIG welding, alloy weldability/EI559A alloy

ABSTRACT: The weldability of the nickel-base EI559A alloy (0.10 max% C, 0.8 max% Si, 0.3% max Mn, 15-18% Cr, 55-60% Ni, 2.8-3.6 Al, remainder Fe) in manual TIG welding with or without filler wire has been investigated. The alloy susceptibility to hot cracking was tested by the T-joint, Kautts, and MVTU methods in 3 mm-thick sheets which were air cooled from 1200C or air cooled and aged at 750C or 8 hr. All welds made without filler wire or with EI559A filler wire had cracks, but none were observed in the welds made with VZh98 filler wire, notably in the unfilled craters or in the heat-affected zone. The alloy welded in the unaged condition had somewhat lower susceptibility to hot cracking. Regardless of the filler wire used, the bend angle of nonheat-treated welds was 180 deg. The welds in the initial condition and after aging at 800C for 2000 hr had practically the same notch toughness of 11-15 kgm/cm² at 800C. Metallographic examination showed that butt-welded joints were dense and

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UDC: 621.791.011:669.15-194

L 10227-66

ACC NR: AP5027606

sound. The experimental results showed that EI559A alloy parts up to 2.5 mm thick can be satisfactorily welded by manual TIG welding with Kh15N60V15(VZh98) alloy filler wire. The use of EI559A filler wire is permissible only for welding of low-rigidity structures. To reduce the danger of hot cracking, the alloy should be welded at the annealed condition with the minimum possible heat input, the melting pool should be thoroughly shielded, and all craters should be filled. On the basis of the experiments, welding conditions were specified for joining EI559 alloy tubes and for welding ribs to the tubes. Orig. art. has: 2 figures and 1 table. (MS) 2

SUB CODE: 11, 13/ SUBM DATE: none/ ORIG REF: 002/ ATD PRESS: 4163

Card 2

TIMOREYEVA, V. V.

Vitamin B₁₂ level in the blood serum of normal subjects and its seasonal variations. Probl. gemat. i perel. krovi no.4:43-45 '62. (MIRA 15:4)

1. Iz kafedry propedevtiki vnutrennikh bolezney (zav. - dotsent Z. A. Gorbunkova) Smolenskogo meditsinskogo instituta.

(CYANOCOBALAMINE) (PERIODICITY)

ACCESSION NR: AT4042303

S/0000/63/003/000/0263/0270

AUTHOR: Avstreykh, G. A., M. V. Levin, Lyandres, M. B., Timofeyev, V. V.

TITLE: Electromagnetic DC pump for pumping metal in the system for cooling electrolyzer elements

SOURCE: Soveshchaniye po teoreticheskoy i prikladnoy magnitnoy gidrodinamike, 3d, Riga, 1962. Voprosy* magnitnoy gidrodinamiki (Problems in magnetic hydrodynamics); doklady* soveshchaniya, v. 3. Riga, Izd-vo AN LatSSR, 1963, 263-270

TOPIC TAGS: direct current pump, electromagnetic pump, liquid metal pump, refrigeration, cooling system, electrolyzer, conduction pump

ABSTRACT: The authors note that in the production and transport of light metals pumps with high-power and high-efficiency are required, while in order to ensure accurate measurements it is essential that the pumps used have good adjustment qualities. At different stages of the production process the conditions under which the pump is operated and the power supplies used to drive it may vary considerably (in electrolysis plants high-power DC lines are available; in other shops single-phase or three-phase AC is preferred). Different types of pumps are therefore required in the production of light metals. In the present article, one of the cases in which an electromagnetic pump is used in light metal

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ACCESSION NR: AT4042303

production is considered. During the process of testing one of the electrolyzers it was discovered that there was a need to cool the rods to which the cathode was attached. Air cooling was found to be ineffective, and water cooling was rejected for reasons of safety. This led to the decision to employ the liquid metal as the coolant. A DC conduction pump with series-connected driving coil was selected as the best pump for the particular task. In order to make use of the DC lines in the shop the pump was connected in series with the electrolyzer. The advantages of this type of connection under the specific conditions encountered are discussed in the article. The pump designed for the test electrolyzer was rated to provide a flow of the heat-carrying agent (a eutectic Pb-Bi alloy) of $Q = 0.5-0.7$ m^3/hour at a pressure of $P = 1.5 \text{ kg/cm}^2$. A 2000-2500-ampere power supply was used to drive the pump. The pump was operated for 30 days in the cooling system of the experimental cathode device of the electrolyzer. After this period, inspection of the pump and the inner part of the channel failed to reveal any damage whatsoever. The efficiency of the pump, calculated on the basis of its pressure, productivity and power consumption when operating with the experimental electrolyzer, was only 2-3%. The authors describe the various calculation methods normally used in the design of pumps with optimal structural dimensions. Since the pump reported on in this article had non-optimal dimensions, a study was made of the applicability of these methods to such pumps (that is, to pumps

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whose structural dimensions are not optimal). The stand on which the pump testing was performed is described in detail in the article. It is noted that the same alloy used in the cooling system was employed as the working liquid. The processing of the experimental results of this test is described (the method of least squares was specifically used in the approximation of these data). The fundamental mathematical expression, on the basis of which the calculated characteristics of the pump were obtained, is analyzed. The authors note that the determination of the causes of the divergence between calculated and experimental $p = f(Q)$ characteristics, when the static characteristics show good agreement, is essential to the design of a pump to be used in an industrial cooling system associated with an electrolyzer cathode unit, since it is to a large degree on the nature of these causes that the feasibility of employing the conventional methods of calculating high-power pumps with non-optimal dimensions depends. Orig. art. has: 2 formulas and 4 figures.

ASSOCIATION: None

SUBMITTED: 04Dec63

ENCL:00

SUB CODE: IE

NO REF SOV: 006

OTHER: 004

3/3

Card

TIMOFEYEV, V. V.

PHASE I BOOK EXPLOITATION

692

Akademiya nauk SSSR. Ural'skiy filial

Zhelezorudnaya baza Tagilo-Kushvinskogo promyshlennogo rayona (Iron Ore Deposits of the Tagil-Kushva Industrial Area) Sverdlovsk, 1957. 188 p. 1,400 copies printed.

Resp. Eds.: Ivanov, A. A., Corresponding Member USSR Academy of Sciences (deceased) and Karasik, M. A., Candidate of Geological and Mineralogical Sciences.

PURPOSE: This book contains papers presented during the 1953 visiting session of the Academic Council of the Mining and Geological Institute of the Ural Branch of the Academy of Sciences, USSR, and affiliated bodies. The book should be of interest to geologists and to personnel in the mining and metallurgical industries.

COVERAGE: These scientific papers deal with mine geology and various aspects of the mining and metallurgical industries of Tagil-Kushva area. Each paper is separately reviewed in the Table of Contents.

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Iron Ore Deposits (Cont.)

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Ivanov, A. A., Corresponding Member of the Academy of Sciences, USSR, Director of the Mining and Geological Institute of the Ural Branch of the Academy of Sciences (deceased). The Tasks of the Session

3

In this introductory paper the author mentions briefly the need for a more rapid and efficient exploitation of the natural resources of the Ural area. He deals with the work of the "Uralruda" and "Ural-chermetravezka" trusts and calls for better cooperation between scientists and engineers on the job.

Shteinberg, D. S., Candidate of Geological and Mining Sciences, Sverdlovsk Mining Institute imeni V. V. Vakhrushev. The Geological Structure of the Tagil-Kushva Iron Ore District

5

This paper describes the structure and petrology of the Tagil-Kushva metallogenic province. The deposits of iron ore, iron-copper ore, and manganese ores are reported to be associated with complex gabbro-syenite intrusions. The stratigraphy, syenite intrusions, metamorphism, and the contact-metasomatic iron deposits are briefly discussed. There are 5 Soviet references.

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Iron Ore Deposits (Cont.)

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Timofeyeva, V. V., Engineer. United Ural Geophysical Trust. The State of Geophysical Survey of the Tagil-Kushva Iron Ore District and Future Plans for Geophysical Exploration of the Area

21

The Tagil-Kushva district has been covered by ground and airborne magnetometer surveys in which numerous anomalies were disclosed. The gamma range and the causes of magnetic anomalies are discussed in this paper and plans exist to carry out more detailed magnetometer surveys and to concentrate on low anomalies and on deep-seated ore bodies. The author acknowledges the assistance of I. A. Zimin, Chief Geologist. There are no references.

Ovchinnikov, L. N., Doctor of Geological and Mining Sciences. Mining and Geological Institute of the Ural Branch of the Academy of Science, USSR. Regularity in the Distribution of Contact Metasomatic Ore Deposits in Central and Northern Urals

28

A large part of the ore deposits in the Ural area is said to be of contact metasomatic origin. The main deposits on this kind are shown on an attached map. A description is given of the east flank of the

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Iron Ore Deposits (Cont.)

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Central and Northern Urals and the relationship between structure and ore deposits is discussed. As most deposits are believed to be structure-controlled, the exploration for new deposits should be conducted along these lines. Numerous personalities who have worked in this area are mentioned. There are 21 references of which 20 are Soviet, and 1 English.

Karasik, M. A., Candidate of Geological and Mining Sciences. Geological and Mining Institute of the Ural Branch of the Academy of Sciences, USSR. Economic Contact-Metasomatic Deposits of Magnetite in the Tagil-Kushva District and Special Features of Distribution of Associated Elements in the Ores of this Metallogenic Province

64

The important iron ore deposits in this area are said to be of contact metasomatic origin. These iron ores are associated with cobalt, copper, titanium and rare earths. The association of sulphides with magnetite, and the amount and form of sulphides in cobalt-copper-magnetite ores is analyzed. Some commercial quantities of gold, silver, vanadium and titanium have been found associated with magnetite. There are numerous

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Iron Ore Deposits (Cont.)

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geologic maps, thin-sections and tables with the compositions of various ores. Many names of geologists and scientific workers are quoted. There are 13 Soviet references.

Loginovskiy, V. M., Chief Geologist of "Uralruda" Trust. Iron Ore Reserves for the Mining Industry in the Tagil-Kushva District

99

The iron ore deposits in the Tagil-Kushva district are of contact-metasomatic and magmatic origin. The industrial classification of iron ore is discussed. The known deposits are said to be nearing exhaustion. The use of low-grade ores calls for large concentrating plants. It is stated that expansion of the industry depends on the discovery of new deposits between the town of Kushva and Serov. No personalities are mentioned. There are no references.

Mazurin, K. P., Chief Engineer with the Vyzokaya Gora geological exploration crew of the "Uralchermetravezka" Trust. The State of Ore Reserves in the

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Nizhniy-Tagil Mining District and Its Prospective Development

Various economic and geological factors are considered to determine the known and possible ore reserves in this area. An attempt is made to

Card 5/9

SHUYKIN, N.I.; TIMOFEEVA, Ye.A.

Investigations on the chemical nature of light fractions of the
primary tar from Budagovsk sapropelite. Izv.Akad.nauk SSSR; Khim.
ctd. no.2:120-128 Mar-Apr 51. (CIML 20:7)

1. Institute of Organic Chemistry of the Academy of Sciences USSR.

TIMOFEEVA, YE. A.

USSR/Chemistry - Liquid Fuels

Nov/Dec 51

"Conversion of Middle Fractions of Tar From Budagovo Sapropelites to Useful Products,"
N. I. Shuykin, Ye. A. Timofeyeva, Inst Org Chem, Acad Sci USSR

"IZ Ak Nauk SSSR, Otdel Khim Nauk" No 6, pp 728-732, 1951

Established conditions for converting the middle fraction (170-300°) of primary tar from Budagovo [$47^{\circ}37' N$, $134^{\circ}41' E$?], sapropelites, using acid-activated Troshkovo [$57^{\circ}59' N$, $61^{\circ}58' E$?] clay at 450° and vol velocity of 0.3. From this fraction, which contains 14% of hydrocarbons boiling below 200°, obtained 31.6% of gasoline (bp 35-200°) and 44.6% of kerosene (bp 200-300°). This corresponds to a gasoline yield of 12.6% and a kerosene yield of 17.2%. Both products are of good quality.

PA 197T8

*Vitroclay, Interventor &
Asphalt 22*

P

• Desulfurizing action of Troshkov kaolin. E. A. Timonin, N. I. Shulkin, and V. M. Kleinanova. *Izv. Akad. Nauk S.S.R., Otdel. Khim. Nauk* 1952, 489-94.—The catalyst was prepd. from the clay without acid pretreatment, and the desulfurization expts. were run in the usual flow-type system at atm. pressure. The test gasoline had d_4^{20} 0.7300, η_1^{20} 1.4193, 0.185% S, 2.3 l no., 10% hydrocarbons subject to sulfonation. Preliminary tests showed that 400° was the optimum temp. at which the S content was dropped to 0.031%. Artificial mixts. of purified gasoline with PrSH_2 , diisopropyl sulfide, thiophene, and thiophane gave similar results. The catalyst is regenerated by air-blowing at 300° for 3.5 hrs. After regeneration the desulfurizing action is greatly improved. Regeneration of catalyst is also accomplished by heating of the catalyst, although air-blowing is preferred. The removal of thiophene or thiophane to the level of 0.03-0.01% usually requires recycling over the catalyst as a single pass removes only some 30% thiophane or S, while in the case of thiophane 2 passes serve to remove only some 34% of the S and no further effect is observed.
G. M. Kosolapoff

TIROFEMEVA, YE.A., SHUJKIN, N.I., KLOKHOVA, V.M.

Kaolin

Desulfurizing action of Troshkove kaolin. Izv. AN SSSR Otd. Khim. Nauk no. 3, 1952.

O. 468-72

9. Monthly List of Russian Accessions, Library of Congress, ^{Nov. 1952} ~~1952~~, Unclassified.

G. M. Kosolapoff

Dehydrogenation of pentane. R. A. Timofeeva, S. S. Novokov, and N. I. Shunkin. *Doklady Akad. Nauk S.S.R.*, 92, 343-8 (1953).—Contact of *n*-pentane with alumino-chromo-magnesium catalyst (45 mole-% Cr_2O_3 , 30 Al_2O_3 , 25 MgO) at 600° at space velocity 1.2, gave a catalyst with 21-2% pentene content, most of which (95%) consisted of 2-pentene. In addition the catalystate contained smaller amounts of 1-pentene, pentadienes, isopentane, C_4H_8 , and *m*-xylene. When MgO is omitted from the catalyst formulation the extent of dehydrogenation declines; when KOH or K_2CO_3 are added to the original catalyst the results are also negative. G. M. Kozolapoff.

TUMOFEVA, 15/11

✓ Transformations of individual hydrocarbons in contact with natural aluminosilicates. II. Transformations of cyclohexane, methylcyclohexane, and toluene in the presence of Troshkovsk clay. E. A. Timofeeva and N. I. Shulkin (N. D. Zelinskii Inst. Org. Chem., Acad. Sci. U.S.S.R., Moscow). *Izvest. Akad. Nauk S.S.R., Otdel. Khim. Nauk* 1954, 1075-81; cf. *C.A.* 48, 129385.—Passage of the hydrocarbons over Troshkovsk clay, activated by contact with H_2SO_4 , was made at space velocity 0.3 at 450° and 500°. After a run, the catalyst was regenerated by air blowing at 500°. Under these conditions, an 11-12% conversion of cyclohexane, and 30-32% of methylcyclohexane was found. At 450° cyclohexane gave 2.7% sulfonatable aromatics, while at 500° this rose to 5.2%; the off-gases consisted of 8.7-9.8% olefins, 87-90.1% H₂ and 0.3-4.3% paraffins. The catalyst contained C₆H₆, methylcyclopentane, cis-2-hexene, and other olefins; homologs of benzene were detected. Methylcyclohexane at 450° gave 8.5% sulfonatable products, while at 500° this rose to 15%; the gases contained 15.6-18.2% olefins, 35.7-43.0% H₂, and 41.8-46.1% paraffins. The catalyst, examined by the Raman method, showed the presence of heptane, 2-methylhexane, 3-methylhexane, 1,2-dimethylcyclopentane, MePh, *t*- and *m*-Me₂C₆H₄ (identified only by oxidation to the acids), and possibly higher homologs of benzene. MePh passed over the catalyst at 500° gave traces of olefins, 1% C₆H₆, and 2% higher homologs of C₆H₆; the rest of MePh is unchanged. Thus, in the reaction of methylcyclohexane, dehydrogenation is not the primary step. G. M. K. (D)

TIMOFEYEV A, Ye. A

USSR/ Chemistry - Organic chemistry

Card 1/1 Pub. 40 - 16/26

Authors : Shuykin, N. I., and Timofeyeva, Ye. A.

Title : Conversions of individual hydrocarbons during contact with natural aluminosilicates. Part 3.

Periodical : Izv. AN SSSR. Otd. khim. nauk 2, 314 - 322, Mar-Apr 1955

Abstract : The conversion of two representatives of five-membered cyclanes - cyclopentane and ethylcyclopentane as well as ethylcyclohexane and ethyl benzene - was investigated at 500° with activated Torshkov clay in the role of contact. It was established that the depth of cyclane conversion increases with the increase in their molecular weight. A study of the characteristics of ethylcyclohexane and ethyl benzene showed that the catalytic reaction leading to the synthesis of alkyl substitutes has a much higher rate than the dehydrogenation reaction of the basic ethylcyclohexane. Three USSR references: (1951-1954). Tables; graphs.

Institution : Acad. of Sc., USSR, The N. D. Zelinskiy Inst. of Organ. Chem.

Submitted : April 14, 1955

Shuykin, N.I., Ye. A.,

SHUYKIN, N.I.; TIMOFEEVA, Ye.A.; SLADKIKH, V.M.

Contact-catalytic conversions of *n*-pentane in presence of a
chromium aluminum magnesium catalyst. Izv. AN SSSR. Otd. khim.
nauk no. 3:567-569 My-Je '55. (MIRA 8:9)

1. Institut organicheskoy khimii im. N.D.Zelinskogo Akademii
nauk SSSR.

(Pentane)

Timofeeva, Ye. A.

SHUYKIN, N. I.; DOBRYMINA, T. P.; TIMOFEEVA, Ye. A.; YEGOROV, Yu. P.

Catalytic dehydrogenation of isopentane. Izv. AN SSSR, Otd. khim.
nauk no. 5: 952-953 S-0 '55. (MLRA 9:1)

I. Institut organicheskoy khimii imeni N. D. Zelinskogo Akademii
nauk SSSR. (Butane) (Dehydrogenation)

"APPROVED FOR RELEASE: 07/16/2001

CIA-RDP86-00513R001755720020-2

APPROVED FOR RELEASE: 07/16/2001

CIA-RDP86-00513R001755720020-2"

AID P - 2809

Subject : USSR/Chemistry
Card 1/1 Pub. 119 - 5/7
Authors : Novikov, S. S. and Ye. A. Timofeyeva (Moscow)
Title : Isomerization of alkanes and cyclanes
Periodical : Usp. khim. 24, 4, 471-507, 1955
Abstract : A review is given of the literature on the isomerization of normal alkanes and of cyclanes in the presence of various catalysts. The effect of hydrogen and organic additives on the suppression of secondary reactions is discussed. Four diagrams, 16 tables, 186 references, 81 Russian: (1897-1954).
Institution : None
Submitted : No date

"APPROVED FOR RELEASE: 07/16/2001

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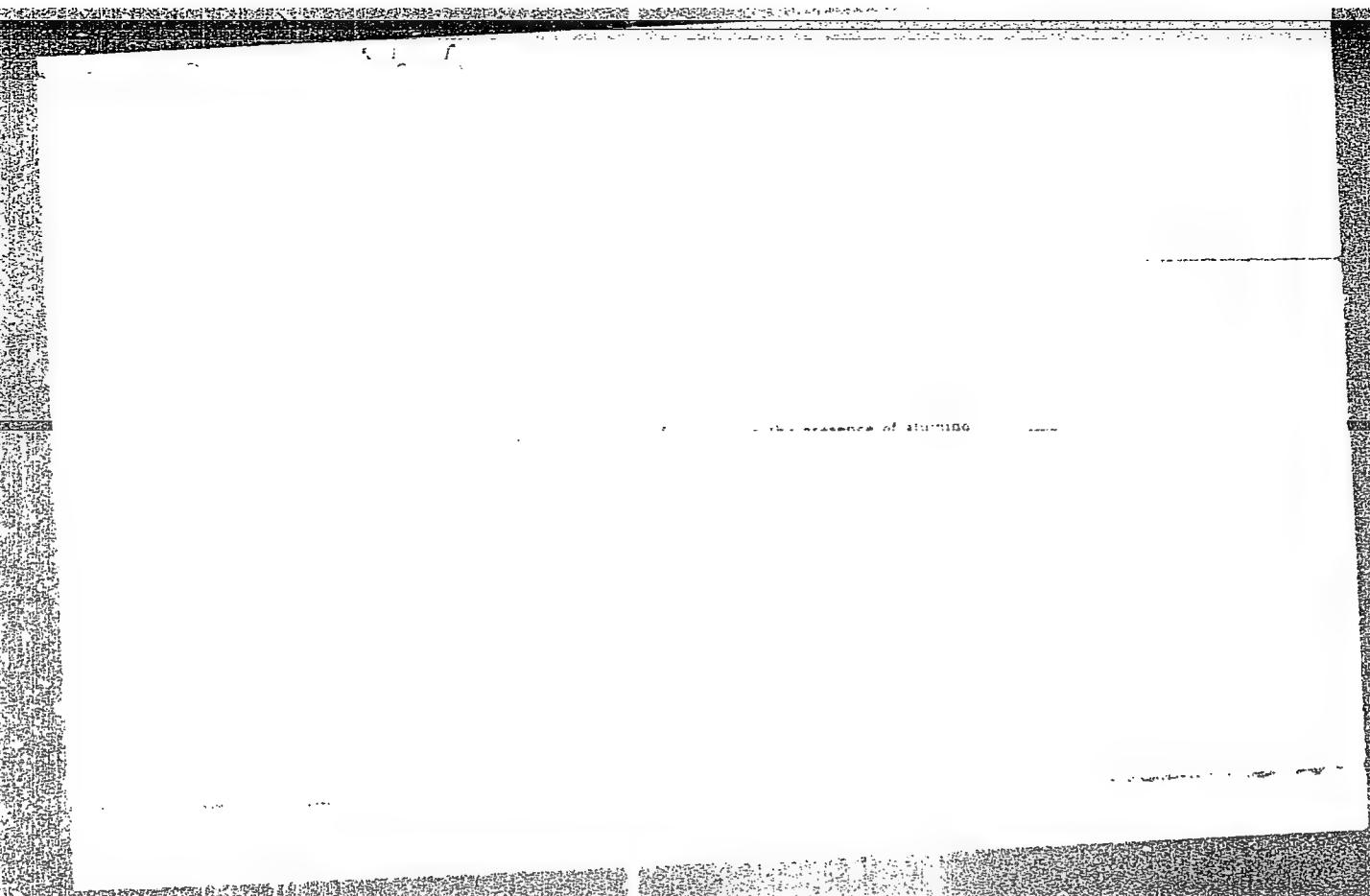
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APPROVED FOR RELEASE: 07/16/2001

CIA-RDP86-00513R001755720020-2"

AUTHORS:

Timofeyeva, Ye. A.; Kleymenova, V. M.; Dobrynina, T. P. 62-1-18/21

TITLE:

Application of the Kaufman-Gal'pern Bromometric Iodine Number Determination Method to Certain C₅ and C₆ Hydrocarbons (Primeneniye bromometricheskogo metoda opredeleniya iodnykh chisel po Kaufmanu-Gal'pernu k nekotorym uglevodorodam sostava C₅ i C₆).

PERIODICAL:

Izvestiya Akademii Nauk SSSR, Otdeleniye Khimicheskikh Nauk, 1957, No. 1, pp. 122-123 (U.S.S.R.)

ABSTRACT:

The applicability of the Kaufman-Gal'pern method to the determination of iodine numbers and the content of unsaturated hydrocarbons in catalysts obtained during the dehydrogenation of n-pentane, iso-pentane and n-hexane, is discussed. The tendency (of the basic saturated hydrocarbons as well as hydrocarbons forming during catalysis, and artificial mixtures of these very same hydrocarbons) toward the bromine solution is analyzed. It was established that the bromometric method of determining iodine numbers (the Kaufman-Gal'pern method), when

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62-1-18/21

Application of the Kaufman-Gal'pern Bromometric Iodine Number
Determination Method to Certain C₅ and C₆ Hydrocarbons

applied to individual monoolefines C₅ and C₆ and their mixtures with alkanes, offer highly satisfactory results. The authors determined the coefficient with the aid of which it became possible to utilize the Kaufman-Gal'pern bromometric method for the determination of the content of monoolefins in their mixture with conjugated diolefines and alkanes.

Detailed results of this investigation are presented in unnumbered table on page 123.

Table. There are 5 Slavic references.

ASSOCIATION: Academy of Sciences of the USSR, Institute of Organic Chemistry
imeni N. D. Zelinskiy

PRESENTED BY:

SUBMITTED: October 10, 1956

AVAILABLE:
Card 2/2

AUTHORS:

Timofeyeva, Ye. A., Shuykin, M. I.

62-58-5-7/27

TITLE:

Contact-Catalytic Dehydrogenation of N-Pentane at Various Temperatures (Kontaktno-kataliticheskaya degidrogenizatsiya n. pentana pri razlichnykh temperaturakh)

PERIODICAL:

Izvestiya Akademii Nauk SSSR, Otdeleniye Khimicheskikh Nauk, 1958, Nr 5, pp. 570 - 574 (USSR)

ABSTRACT:

As already previously reported by the authors (References 1,2) the dehydration of n-pentane and isopentane can be well carried out with an aluminum-chromium catalyst activated by potassium-oxide (Al_2O_3 ; Cr_2O_3 ; $K_2O = 90,7:5,6:3,7$ mol%). Investigations have shown that the activity of the catalyst can be increased when after burning out of the socalled coal-film from the surface of the catalyst by means of oxygen, the same is treated by hydrogen. Already Maslyanskiy and Bursman (Reference 3) found that a reduced aluminum-chromium-catalyst is more active than an oxidized one, especially for the dehydration of cyclohexane. Similar indications are given by Vol'tts and Veller (Reference 4). The authors of the present report investigated the influence of the temperature on the course of

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Contact-Catalytic Dehydrogenation of N-Pentane at
Various Temperatures

62-58-5-7/27

reaction of the dehydration of n-pentane in the presence of an aluminum-chromium-potassium-catalyst. It was shown that the dehydrogenation of n-pentane attains the equilibrium under the assumed conditions at 500 to 550°C. Further it was found that not an increased activity of the catalyst is required for a better yield of pentanes but a better selectivity of the same. There are 3 figures, 4 tables and 6 references, 4 of which are Soviet.

ASSOCIATION: Institut organicheskoy khimii im. N. D. Zelinskogo Akademii nauk SSSR (Institute for Organic Chemistry imeni N. D. Zelinskogo AS USSR)

SUBMITTED: December 6, 1956

1. Pentanes--Dehydrogenation 2. Pentanes--Temperature factors
3. Catalysts--Properties 4. Potassium oxide--Applications

Card 2/2

AUTHORS: Shuykin, N. I., Timofeyeva, Ye. A. Dobrynina, T. P. SCV/62-58-6-12/37

TITLE: The Contact-Catalytic Dehydration of Isopentane in Dependence on Temperature (Kontaktno-kataliticheskaya degidrogenizatsiya izopentana v zavisimosti ot temperatury)

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye khimicheskikh nauk, 1958, Nr 6, pp. 726 - 729 (USSR)

ABSTRACT: In an earlier work (Ref 1) the influence exercised by temperature upon the dehydration of n.isopentane in the presence of an aluminum-chromium catalyst was investigated. It was found that at 500-550° the reaction of the dehydration of n.pentane attains the state of equilibrium. In the present work the same investigation is carried out with isopentane. It was found that in the interval of 500-550° the dehydration of isopentane attains a state of equilibrium. At 500-550° the amount of isopentene obtained from isopentane exceeds that of n.pentene obtained from n.pentane by 7-8 mol %. Less "coke" and gas was formed under existing conditions (by the dehydration of isopentane) than by the dehydration of n.pentane. There are 2 figures,4 tables, and 5

Card 1/2

The Contact-Catalytic Dehydration of Isopentane in
Isopentane in Dependence on Temperature

SOV/62-58-6-12/37

references, 4 of which are Soviet.

ASSOCIATION: Institut organicheskoy khimii im. N.D.Zelinskogo Akademii nauk
SSSR (Institute of Organic Chemistry imeni N.D.Zelinskiy, AS USSR)

SUBMITTED: December 6, 1956

1. Isopentane--Dehydration 2. Isopentane--Catalysis
3. Isopentane--Temperature factors 4. Aluminum-chromium catalysts
--Performance

Card 2/2

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1112

The oligomerization of hydrocarbons of different structure in the presence of chlorine-Chromium-Potassium catalyst (D-gidrogenat iyunogrodorodov razlichnogo stroya i sverupnosti v plamene plamogazomakhlivnogo katalizatora)

2019-10-01 02:45:49

Prezidium Akademii Nauk SSSR, Otdeleniye Khimii i Khimicheskikh Nauk, 1968, Nr. 7, str. 90-92 (ISSN 0869-6513)

1120 J. C. H. CHAN

It is taken for granted that in the presence of oxidants such as Cr_2O_7 or CrO_3 certain conditions aromatic hydrocarbons are formed which are alkanes having 6 and more carbon atoms in the main chain. Therefore they are not suited for a direct cyclization (refs. 1, 5). In the investigation of the aromatization of alkanes and isoparaffins greatest attention was directed to the formation of aromatic hydrocarbons and less attention to the cyclization. The structure of aromatic hydrocarbons in the present paper is in accordance with the reactions of hydrocarbons of different structure (C_6 , C_7 , C_8) in the presence of aluminum-chromium-potassium catalysts. It is

For the first time, the 1990s brought a new, more militant, generation of Chinese dissidents, who were to become known as the "New Tiananmen" generation.

On the conditions assumed by the field of the corresponding
electrostatic approximation, $\mathcal{E} = \pm 10^6$ in the range of 10^4 to 10^5
cm $^{-1}$ and from 10 to 1000 cm $^{-1}$. The same
is true of the case B + C, only 3 of which are found.

Институт органической химии им. Н. Б. Зелинского Академии наук СССР
Institute of Organic Chemistry named N. B. Zelinsky, AS USSR

RECEIVED: February 11, 1958

907/62-58-7-18/26

AUTHORS: Shuykin, N. I., Timof'yeva, Ye. A., Dobrynina, T. P., Plotnikov, Yu. N., Stryayeva, G. S., Ulymenova, V. M.

ABSTRACT: The Reactions of n-Alkanes with a C₅-C₉ Structure in the Presence of Alumino-Chromium-Potassium Catalysts (Prevrashcheniya n-alkanov sostava C₅-C₉ v prisutstvii alyumokhromokaliyevogo katalizatora)

PUBLICATION: Izvestiya Akademii nauk SSSR, Otdeleniye Khimicheskikh nauk, 1958, Nr 7, pp. 896-898 (USSR)

ABSTRACT: The production of alkenes and alkadienes by means of the catalytic dehydration of the alkanes is of scientific and practical interest. In the present brief report the authors describe the reaction of n-alkanes (from pentane to nonane) in the presence of alumino-chromium-potassium catalysts of high activity and stability in the dehydration of iso-pentane. It was shown that on the conditions assumed catalysts could be obtained from these alkanes which contained 8-29% of unsaturated and 39-50% of aromatic hydrocarbons. Finally the authors point to the fact that after the dehydration of

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30V/62-58-7-18/26

The Reactions of N_2 Alkanes With a $\text{C}_6\text{-C}_9$ Structure in the Presence of
Alumino-Chromium-Potassium Catalysts

the $\text{C}_6\text{-C}_9$ n.alkanes they obtained catalysts which contained
more than 14 % of alkenes. There are 1 figure and 5 references,
5 of which are Soviet.

ASSOCIATION: Institut organicheskoy khimii im. N. D. Zelinskogo Akademii
nauk SSSR
(Institute of Organic Chemistry imeni N. D. Zelinskogo, AS USSR)

SUBMITTED: February 17, 1958

Card 2/2

Author:

Markin, Yu. I. Corresponding Member, Academy of Sciences,
USSR, Timiryazev, 76 ... , Dobryanka, G. U.

Title:

Dehydrogenation of n-Pentane and Isopentane in presence of
Alumo-Chromate-Potassium Catalyst (Dehidrogenatsiya
pentana i isopentana v prisutstvi alumochromokaliyevogo
katalizatora)

Source:

Doklady Nauk SSSR, 1958, Vol. 121, No. 6, pp. 457-457
(UDC)

Abstract:

Although mixed catalysts (ref 4, 5) is mentioned in the title
can be found already in earlier papers the authors of this
paper succeeded for the first time in the determination of:
A) the most favorable quantity ratio of the components and
B) the conditions of the previous activation of the catalyst.
These formulas are mentioned together with the formula for
regeneration. In influence of a) temperature, b) built-in cells
(ob'yemnye shkrobt') and c) the duration of the working
cycles are investigated with respect to the capacity of de-
hydration of the mentioned catalyst. After each regeneration
the catalyst was treated for 1,5 hours with hydrogen. a) Table 1

Card 1/3

107/30-1-1-2-17
DETERMINATION OF ISOPENTANE AND ISOPENTENE IN PRESENCE OF ALUMINA-CATALYST
100% 20% 10%

Shows the results of the temperature experiments which guarantee the high isobutane yield of pentenes and isopentenes. a) Table I presents the results of the experiments with the bulk catalyst, which is of the best quality. according to which the yield of isopentane and isopentene depends on the temperature. The low-r.t. has a greater influence. Thus the change of velocity from 0.5 to 1.0 hours⁻¹ reduces the isopentene yield from 38 to 27 % and the yield of pentenes from 31 to 19 %. At 550 and 575° this influence practically ceases. c) The higher the temperature the more rapidly decreases the activity of the catalyst with respect to time (Fig 1). During a working cycle of an 18 minutes' duration the isopentene content increases from 25 % by weight to 45 % in cancellation with a rise of temperature from 500 to 550°, computed for the isopentane having warmed the catalyst. It is true that in a working cycle of 3 hours and 18 minutes and of 6 hours and 24 minutes at 500° the yields are somewhat higher than at 550°, namely 52.6 compared with 37.1 % and 40 with 26 %, respectively. At the end the main indices of the working procedure together with the obtained yields are shown under

day 2/3

BOV/2o-121-/-25/47

Dehydrogenation of n-Pentane and Isopentane in Presence of Alumino-Chromium-Potassium Catalysts

the just mentioned conditions. There are 1 figure, 2 tables, and 7 references, 4 of which are Soviet.

ASSOCIATION: Institut organicheskoy khimii, im. N. D. Zelinskogo Akademii nauk SSSR
(Institute of Organic Chemistry imeni N. D. Zelinskogo, AS USSR)

SUBMITTED: January 4, 1958

Card 5/3

S (3)
ATTACHES:

TITLE:

PERIODICAL:

ABSTRACT:

Timofayeva, Ye. A., Shuykin, N. I.
Dobrovina, T. P., Kleymenova, T. N.
Effect of Space Velocity on the Catalytic Dehydrogenation
of n-Pentane and Isopentane (Vliyaniye ob'yemnoy skorosti na
kataliticheskoye degidrirovaniye n-pentana i izopentana)
Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk,
1959, Nr 5, pp 875-878 (USSR)

SOV/62-59-5-16/40

In previous works (Refs 1-3) on the temperature effect on the dehydrogenation reaction of n-pentane and isopentane the authors showed that this reaction attains equilibrium at a **space velocity** of 0.5/hr in the temperature range between 500 and 550°. In connection with it the effect of the throughput rate on the reaction mentioned has been investigated in this work. n-Pentane was investigated in the same temperature range between 500-550°, isopentane in the same temperature range between 550-575°. The **space velocity** was varied from 0.3-1.7/hr. The method of analysis and the investigation conditions were similar to those of the works (Refs 2, 3). The results were obtained are shown in tables 1-1 and figures 1 and 2. Table 3 shows the effect of the **space velocity** on the dehy-

Effect of **Space Velocity** on the Catalytic
Dehydrogenation of *n*-Pentane and Isopentane

SOV/62-59-5-16/4C

genation reaction of *n*-pentane and isopentane, respectively. Tables 2 and 4 show the molar balance of the reaction and the selectivity of the catalyst of the two compounds mentioned. The figures show the molar balance depending on the throughput rate. Aluminum chromium potassium catalysts were used in the reactions. It appeared that the dependence of the mono-olefin yield on the **space velocity** decreases with temperature rise. If the reaction is carried out at a **space velocity** of 0.3-1.1/hr at 550 and 575° the yield is not changed at all. Optimum reaction conditions prevail at 550° and a **space velocity** of 1.1/hr. Under these conditions 45 mole % isopentene and 5 mole % isoprene were formed from isopentane. 39 mole % pentene are formed from *n*-pentane. The isoprene yield is practically independent of the change of **space velocity**; it never surpasses 5-6 mole % of the isopentane let through. There are 2 figures, 4 tables, and 3 Soviet references.

Card 2/3

Effect of Space Velocity on the Catalytic
Dehydrogenation of n-Pentane and Isopentane

SOV/62-59-5-16/40

ASSOCIATION: Institut organicheskoy khimii im. N. D. Zelinskogo Akademii
nauk SSSR (Institute of Organic Chemistry imeni N. D.
Zelinskogo of the Academy of Sciences, USSR)

SUBMITTED: July 13, 1957

Carol J. /s/

5(2)

AUTHORS:

Timofeyeva, Ye. A., Shuykin, N. I., SOV/20-125-6-27/61
Corresponding Member, AS USSR,
Plotnikov, Yu. N., Kleymenova, V. M.

TITLE:

Dehydrogenation of n-Hexane on an Aluminochromium Catalyst
(Degidrogenizatsiya n-geksana na alyumokhromovom katalizatore)

PERIODICAL:

Doklady Akademii nauk SSSR, 1959, Vol 125, Nr 6, pp 1272-1274
(USSR)

ABSTRACT:

A survey of publications on the reaction mentioned in the title (Refs 1-2) shows that neither the instructions concerning the reaction nor the yield of α -hexenes nor the formation of aromatic hydrocarbons under the given conditions have been hitherto discussed. Papers on the afore-mentioned reaction on oxide catalysts lack. Further references follow (3-6). Table 1 shows the data given in the publications concerning the reaction mentioned in the title in the presence of chromium and with the aromatization of n-heptane. This shows that catalyzates have hitherto been obtained by various research workers which contained considerably less unsaturated hydrocarbons than aromatic ones. On the strength of their investigations carried out in the last years the authors drew the conclusion that it is possible to

Card 1/3

Dehydrogenation of n-Hexane on an Aluminochromium Catalyst

SOV/20-125-6-27/61

change considerably the ratios of the yields of the two aforementioned hydrocarbon types, i.e. from 0.14 to 2.11 by changing the production of the catalysts mentioned in the title, furthermore, by the introduction of oxides of alkali metals, finally by changing the instructions concerning the reaction. The catalyst without alkaline additions was the best of all catalysts investigated, as far as the maximum yields of unsaturated hydrocarbons are concerned. It was produced by the saturation of aluminum oxide with ammonium bichromate solution. Unsaturated hydrocarbons with a yield of 20% and not more than 14% benzene were obtained from n-hexane at 500° and a rate of 0.5 h^{-1} . It was the authors' object to suppress the aromatization even more in this investigation. All factors were investigated for this purpose: temperature, rate of passage, and individual parts of the catalyzate were analyzed etc. Table 2 and figure 1 show the results. The gas produced by the transformations of n-hexane at 475 and 500° contained 90.6-95.3% hydrogen, up to 1.8% unsaturated hydrocarbons, and 2.7-7.5% alkanes. The temperature rise within the afore-mentioned range increases the yield of hexenes only by 2%, that of benzene,

Card 2/3

Dehydrogenation of n-Hexane on an Aluminochromium
Catalyst

SOV/20-125-6-27/61

however, by 9-13%. Thus, it was found that the dehydrocyclization of n-hexane practically does not take place under the given conditions, whereas hexenes are produced in rather considerable quantities. The result is of general importance since the authors succeeded in suppressing the aromatization of an n-alkane which is capable of immediate dehydrocyclization in the presence of an aluminochromium catalyst. The dehydrogenation of n-hexane is rather considerable. There are 1 figure, 2 tables, and 8 references, 6 of which are Soviet.

ASSOCIATION: Institut organicheskoy khimii im. N. D. Zelinskogo Akademii nauk SSSR (Institute of Organic Chemistry imeni N. D. Zelinskogo of the Academy of Sciences USSR)

SUBMITTED: January 30, 1959

Card 3/3

SHUYKIN, N.I.; TIMOFEEVA, Ye.A.; PLOTNIKOV, Yu.N.; ANDREYEV, N.S.

Composition of the products from the dehydrogenation of n-alkanes
 C_6-C_9 on an alumina-chromium oxide-potassium oxide catalyst. Izv.
AN SSSR. Otd. khim. nauk no.12:2173-2177 D '60. (MIRA 13:12)

1. Institut organicheskoy khimii im.N.D.Zelinskogo AN SSSR.
(Paraffins) (Olefins)

BYKOVA, I.V., st. nauchn. sotr.; STEPANOV, A.S., st. nauchn. sotr.; SOLOV'YEV, A.P.; AFANAS'YEVA, A.A., st. nauchn. sotr.; BOGATYREVA, L.M.; LIFENTSOVA, A.S.; SHUBA, L.S., red.; TIMOFEYeva, Ye.A., red.

[Food product substitutes in the textile industry] Zameni-teli pishchevykh produktov v tekstil'noi promyshlennosti. Moskva, 1963. 67 p. (MIRA 17:12)

1. Moscow. TSentral'nyy institut nauchno-tehnicheskoy informatsii legkoy promyshlennosti. 2. Rukovoditel' laboratorii spetsial'noy otdelki Ivanovskogo nauchno-issledovatel'skogo instituta khlopchato-bumazhnoy promyshlennosti (for Solov'yev). 3. Ivanovskiy nauchno-issledovatel'skiy institut khlopchato-bumazhnoy promyshlennosti (for all except Shuba, Timofeyeva).

TIMOFEYVA, Ye.A.; SHUYKIN, N.I.

Possibility of the catalytic synthesis of neohexene. Nefte-
khimiia 5 no.6:832-834 N-D '65. (MIRA 19:2)

1. Institut organicheskoy khimii imeni Zelinskogo AN SSSR.
Submitted Sept. 7, 1964.

TIMOFEYeva, Ye.A.; SHUYKIN, N.I.; BALASHOV, I.A.; SMIRNOV, V.S.

Catalytic synthesis of neohexane. Izv. AN SSSR. Ser. khim.
no.9:1699-1701 '65. (MIRA 18:9)

1. Institut organicheskoy khimii im. N.D. Zelinskogo AN SSSR.

TIMOFEEVA, Ye. P.; SBUYKIN, N. I.; PETRYAYEVA, G. N.; DUDUKIN, V. V.

Isolation of C₆ - C₈ alkenes from their mixtures with other hydrocarbons
by the bromination method. Izv. AN SSSR, Ser. khim. no. 7:1260-1262 '65.

(MIRA 18:7)

1. Institut organicheskoy khimii im. N.D.Zelinskogo AN SSSR.

BELOSHAPKO, B.M.; VLADIMIROV, B.M., doktor tekhn. nauch, red.;
TIMOFEEV', Ye.A.; red.

[Reducing the breakage in cotton spinning] Snizhenie ob-
ruchnosti v khlopkopriadenii. Moskva, 1963. 36 p.
(MIRA 17:10)

1. Moscow. TSentral'nyy institut nauchno-tehnicheskoy in-
formatsii legkoy promyshlennosti.

PLOTNIKOV, Yu.N.; TILOFEEVA, Ye.A.; SHUYKIN, N.I.

Conversions of n.-hexane on an aluminum-chromium-potassium catalyst
under reduced pressure. Neftekhimiia 4 no.2:225-228 Mr-Ap'64
(MIRA 17:8)

SHUYKIN, N. I.; TIMOFEEVA, Ye. A.; SMIRNOV, V. S.

"Study on catalytic dehydrogenation of C₆-C₁₀-alkanes."

Report submitted to 3rd Intl Cong on Catalysis, Amsterdam, 20-25 Jul 64.

Inst of Organic Chemistry im Zelinskiy, AS USSR, Moscow.

BRAVYY, Z.A.; NILOVA, V.I., red.; TIMOFEEVA, Ye.A., red.;
BRATISHKO, L.V., tekhn. red.

[Calculation method for determining fiber parameters]
Raschetnyi metod opredeleniia parametrov volokna. Mo-
skva, 1963. 27 p. (MIRA 17:3)

1. Moscow. Tsentral'nyy institut nauchno-tehnicheskoy
informatsii legkoy promyshlennosti.

SHUYKIN, N. I.; TIMOFEEVA, Ye. A.; PLOTNIKOV, Yu. N.; DOBRYNINA, T. P.;
PETRYAYEVA, G. S.; SMIRNOV, V. S.

Preparation of C₆ - C₁₀ alkenes by the catalytic dehydrogenation
of alkanes. Neftekhimia 2 no.4:457-466 Jl-Ag. '62.
(MIRA 15:10)

1. Institut organicheskoy khimii AN SSSR imeni N. D. Zelinskogo.
(Paraffins) (Olefins) (Dehydrogenation)

SOMINSKAYA, Nina Isaakovna; TIMOFEYEVA, Ye.A., mladshiy nauchnyy
sotr., red.; RODIONOVA, L.G., red.; POLUKAROVA, Ye.K.,
tekhn. red.

[What to do if a child eats poorly] Kak byt', esli rebenok
plokho est. Moskva, Izd-vo Akad. pedagog. nauk RSFSR,
1962. 30 p. (MIRA 16:5)
(CHILDREN—NUTRITION)

SHUYKIN, N.I.; TIMOFEEVA, Ye.A.; DOBRYNINA, T.P.; PLOTNIKOV, Yu.N.;
PETRYAEVA, G.S.; GAYVORONSKAYA, G.K.

Catalytic dehydrogenation of isohexanes. Izv,AN SSSR Otd.khim.
nauk no.8:1457-1465 Ag '62. (MIRA 15:5)

1. Institut organicheskoy khimii im. N.D.Zelinskogo AN SSSR.
(Hexane) (Dehydrogenation)

AUTHORS:

Shuykin, N.I., Timofeyeva, Ye.A., Plotnikov, Yu.N.
Dobrynina, T.P., Petryayeva, G.S., Smirnov, V.S.
by production of alkenes of a composition C₆-C₁₀
by catalytic dehydrogenation of alkanes

TITLE:

PERIODICAL: Neftekhimiya, v.2, no.4, 1962, 457-465

TEXT: The reaction of dehydrogenation of alkanes (C₆-C₁₀) was investigated in order to find appropriate catalysts and conditions for selective production of the corresponding alkenes and as well as to study the possibility of controlling reactions of cracking. The present dehydrogenation, dehydrocyclization and reactions of alkanes, as well as problems. It was shown on examples of 2-methylpentane that alkanes C₆, the long chain of which contains less than 6 carbon atoms, are comparatively easily dehydrogenized on an alumochromopotassium catalyst at 500°C and a volume velocity of 0.5 h⁻¹, yielding from 86 to 89% of 2,3-dimethylbutane and a catalyst containing from 32 to 40% of alkenes. Conditions for dehydrogenation of 2,2-dimethylbutane were found under which

APPROVED FOR RELEASE: 07/16/2001

S/204/62/002/004/004/019
E071/E433

The production of alkenes ...

S/204/62/002/004/004/019
E071/E433

96.5% yield of catalyst, containing 10.4% of 3,3-dimethylbutene-1 (practically equilibrium yield) and 4.6% of cracking products were obtained (no details given). Some catalysts and process conditions for selective dehydrogenation of n-hydrocarbons C₆-C₁₀ were found under which about 10% yields of corresponding alkenes were obtained. The possibility of selective dehydrogenation of n.alkenes (C₆-C₁₀) into alkenes was indicated by comparison of results obtained with various catalysts which pointed out the existence of two kinds of active centres on alumochromium catalysts - dehydrogenating and dehydrocyclizing. The activity of dehydrocyclizing centres can be considerably lowered by a treatment of the catalyst with cyclopentadiene or furfurole with subsequent regeneration. The possibility of controlling dehydrogenation, dehydrocyclization and cracking reactions by carrying out the process in a fluidized bed of an appropriate catalyst was demonstrated, e.g. on dehydrogenation of n.nonane over Al₂O₃ + Cr₂O₃ catalyst at 500°C selective hydrogenation; at 600°C dehydrogenation and dehydrocyclization; with K-5 catalyst at 600°C - dehydrogenation and cracking with Al₂O₃ + Cr₂O₃ + K O catalyst at 600°C - dehydrogenation with

Card 2/3

S/204/62/002/004/004/019
E071/E433

The production of alkenes ...

cracking and aromatization takes place. It is stated on the basis of a large number of experimental data on dehydrogenation of n.alkanes, that the main mass of alkenes formed consists of isomers with double bond situated in the middle of the molecule; e.g. from n.hexane - hexene-2 and hexene-3, n.heptane - heptene 2 and heptene-3, n.octane - octene 4, n.nonane - nonene 4, n.decane - decene-4 and decene-5. There are 8 tables.

ASSOCIATION: Institut organicheskoy khimii AN SSSR
im. N.D.Zelinskogo (Institute of Organic Chemistry
AS USSR imeni N.D.Zelinskiy)

Card 3/3

TIMOFYEVA, Ye.A.; SHUKIN, N.I.; DOBRYNINA, T.P.

Poisoning of chromium-alumina catalyst with cyclopentadiene and
furfurole. Kin. i kat. 2 no. 4:574-580 Jl. Ag '61. (MIRA 14:10)

1. Institut organicheskoy khimii AN SSSR.
(Catalysts)

S/595/60/000/000/012/01⁴
E196/E485

AUTHORS: Shuykin, N.I., Timofeyeva, Ye.A., Dobrynina, T.P.
TITLE: Contact-catalytic dehydrogenation of pentanes
SOURCE: Vsesoyuznoye soveshchaniye po khimicheskoy
pererabotke neftyanykh uglevodorodov v poluprodukty
dlya sinteza volokon i plasticheskikh mass. Baku, 1957.
Baku, Izd-vo AN Azerb. SSR, 1960. 261-265

TEXT: In earlier published work, the authors found that dehydrogenation of n-pentane using catalyst composed of oxides of Al, Cr and Mg in molar ratio 45:30:25 at 500 to 550°C with space velocity of 1.2 hr⁻¹ gave condensate containing 21 to 26% pentenes, i.e. 18 to 19% of the transformed pentane. A more effective catalyst of the composition Al₂O₃, Cr₂O₃, K₂O (90.7:5.6:3.7 mol %) gave from isopentane at 527°C an 87% yield of catalyst with an olefin content of 38%, consisting of all isomeric isopentenes, mainly 2-methyl-2-butene and also n-pentane (3%), isoprene (2%) and small quantities of pentene-1, pentene-2 and toluene. Under identical conditions, n-pentane was dehydrogenated in 88% yield to a product containing 31% of olefins including: pentene-2 (28%),

Card 1/3

S/595/60/000/000/012/014
E196/E485

Contact-catalytic dehydrogenation ...

pentene-1 (3%), also isopentane (3%) and pentadienes (<1%). The yield is increased by 3 to 4% if the catalyst is reactivated with hydrogen. The same catalyst was used to study the effect of temperature, space velocity and the duration of working cycles. The catalyst's activity is claimed to be such that reaction equilibrium is reached at 500 to 550°C with a space velocity of 0.3 to 0.5 hr^{-1} . The effect of space velocity on the yield of pentenes varies with temperature. At 500°C the yield of isopentenes is reduced from 39 to 27 mol % when space velocity rises from 0.5 to 1.1 hr^{-1} . The corresponding reduction in the yield of isopentenes is 46 to 42% at 527°C and none at 550°C. At 575°C space velocity can be varied from 0.3 to 1.7 hr^{-1} without effect on the yield. The catalyst's active life decreases with increase in reaction temperature. In order to obtain maximum quantity of isopentenes without regard to the usage of raw materials, high reaction temperature (550°C) and high space velocity (1.1 to 1.7 hr^{-1}) are recommended. If, however, the object is to get the highest conversion of isopentane to isopentene, then the lower temperatures may give more economical operation. There are

Card 2 /3

S/595/60/000/000/012/014

Contact-catalytic dehydrogenation . . . E196/E485

2 figures, 2 tables and 5 references: 4 Soviet-bloc and 1 non-Soviet-bloc.

Card 3/3



TIMOFEEVA, Ye.A.; SMIRNOV, V.S.; BOGOMOLOV, V.I.

Dehydrogenation of n-octane and of the 250-320° synthine
fraction in the presence of activated charcoal. Izv. AN SSSR.
Otd.khim.nauk no.7:1320-1325 Jl '61. (MIRA 14:7)

1. Institut organicheskoy khimii im. N.D. Zelinskogo AN SSSR.
(Octane) (Dehydrogenation)

PLOTNIKOV, Yu. N.; SMIRNOV, V.S.; TIMOFEEVA, Ye. A.; KLEYMENOVA, V.M.;
SHUYKIN, N.I.

Dehydrogenation of n-alkanes in a fluidized bed of oxide catalysts.
Kin. 1 kat. 2 no.2:267-272 Mr-Ap '61. (MIRA 14:6)

1. Institut organicheskoy khimii imeni N. D. Zelinskogo AN SSSR.
(Paraffins)
(Dehydrogenations)

SHUYKIN, N.I.; TIMOFYEVA, Ye.A.; KLEYMENOVA, V.M.

Dehydrogenation of n-alkanes on the catalyst K-5. Izv.AN SSSR Otd.
khim.nauk no.4:653-657 Ap '61. (MIRA 14:4)

1. Institut organicheskoy khimii im. N.D.Zelinskogo AN SSSR.
(Paraffins) (Dehydrogenation)

TIMOFYEVA, Ye.A.; SHUYKIN, N.I.; DOBRYNINA, T.P.

Dehydrogenation of 2, 2, 4-trimethylpentane on an alumina-chromium
oxide-potassium oxide catalyst. Izv.AN SSSR.Otd.khim.nauk no.5:
863-867 My '61. (MIRA 14:5)

1. Institut organicheskoy khimii im. N.D.Zelinskogo AN SSSR.
(Pentane) (Dehydrogenation)

TIMOFEEVA-RESOVSKAYA, Ye.A.; TIMOFEEV-RESOVSKIY, N.V.; GETSOVA,
A.B.; GILEVA, E.A.; ZHAROVA, T.V.; KULIKOVA, G.M.;
MILYUTINA, G.A.

Coefficients of the accumulation of radioisotopes of strontium,
ruthenium, cesium, and cerium by fresh-water organisms. Zool.
zhur. 39 no. 10:1449-1453 0 '60.
(MIRA 13:11)

1. Department of Biophysics, Ural Branch of the U.S.S.R.
Academy of Sciences, Sverdlovsk.
(Fresh-water biology) (Radioactive substances)

TIMOFEEVA, Ye.A.; SMIRNOV, V.S.; ZAYEVA, V.I.

Dehydrogenation of n-decane on oxide catalysts. Kin.i kat. 1
no.2:300-305 Jl-Ag '60. (MIRA 13:8)

(Decane)
(Dehydrogenation)
(Catalysts)

86414

S/062/60/000/008/022/033/XX

B013/B055

11/12/10

AUTHORS: Shuykin, N. I., Timofayeva, Ye. A., Dobrynina, T. P.,
Plotnikov, Yu. N., Petryayeva, G. S., and Gayvoronskaya,
G. K.

TITLE: Catalytic Dehydrogenation of Isohexanes

PERIODICAL: Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk,
1960, No. 8, pp. 1457-1465

TEXT: The present paper is a continuation of the investigation into the dehydrogenation of hydrocarbons of different structures over an aluminum-chromium-potassium catalyst. The catalyst is discussed in detail in Ref. 1. The 2-methyl pentane, 3-methyl pentane, and 2,3-dimethyl butane used in this investigation were prepared by the Grignard reaction. 2,2-dimethyl butane was obtained by pyrolysis of pinacoline alcohol acetate (Ref. 2). The experiments were carried out in a continuous system, at 500°C and atmospheric pressure and a flow rate of 0.5 h⁻¹. The catalyst was regenerated after every experiment by oxidation in air at 700°C. The properties of the isohexane catalyzates are listed in Table 1 and the

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Catalytic Dehydrogenation of Isohexanes

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composition of the gases formed in Table 2. For comparison, the corresponding data for n-hexane are also given. As is shown, dehydrogenation of 2-methyl pentane, 3-methyl pentane and 2,3-dimethyl butane yields 34-40% unsaturated hydrocarbons. Isohexanes form up to 2% and n-hexane up to 43% aromatic hydrocarbons. 2,2-dimethyl butane was found to form 15% unsaturated hydrocarbons. Formation of aromatic hydrocarbons was not observed. The gaseous products formed from 2-methyl pentane, 3-methyl pentane and 2,3-dimethyl butane contained 84 - 90% hydrogen, 9 - 12% methane, ethane, and propane, and 1 - 4% of other alkenes and alkanes. The gas obtained from 2,2-dimethyl butane contained 72.6% hydrogen, 21.2% C₁-C₃ alkanes and 6.2% of other hydrocarbons. These data show that 2,2-dimethyl butane is less stable under the given conditions than all other isohexanes. This conclusion was confirmed by the examination of the liquid catalyzates. Analytical data on the catalyzate composition allow the conclusion that, in hydrogenation under the given conditions, all the isohexanes form alkenes containing essentially 6 carbon atoms. Isomerization was not observed in dehydrogenation of 3-methyl pentane. Slight isomerization occurred during dehydrogenation of 2-methyl pentane and 2,3-dimethyl butane. 2,2-dimethyl butane formed alkenes during the catalytic reaction. Approximately half of these alkenes were isomerization products: 4-methyl 2-pentene,

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2-methyl 2-pentene and 2,3-dimethyl 1,3-butadiene. Finally, a thermodynamic calculation of the reaction isohexanes \rightleftharpoons isohexenes was carried out (Table 8, Fig. 2). It is evident from the results obtained that the experimental yields of isohexenes approach the equilibrium yields. Fig. 1 represents chromatograms of an artificial hydrocarbon mixture and several fractions of isohexane catalyzates. The authors thank R. N. Shafran for carrying out the analysis of the gases. There are 2 figures, 9 tables, and 9 references: 7 Soviet, 1 US, and 2 British.

ASSOCIATION: Institut organicheskoy khimii im. N. D. Zelinskogo Akademii nauk SSSR
(Institute of Organic Chemistry imeni N. D. Zelinskogo of the Academy of Sciences USSR) *✓*

SUBMITTED: February 17, 1959

Card 3/3

S/062/60/000/012/010/020
B013/B055

AUTHORS:

Shuykin, N. I., Timofeyeva, Ye. A., Plotnikov, Yu. N., and
Andreyev, N. S.

TITLE:

Composition of the Products of Dehydration of C₆ - C₉
n-Alkanes Over Aluminum-chromium-potassium Catalyst

PERIODICAL:

Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk,
1960, No. 12, pp. 2173-2177

TEXT: In the present paper the authors studied the structure of unsaturated and aromatic hydrocarbons, but above all the composition of alkenes formed from n-alkanes at 500°C over an aluminum-chromium-potassium catalyst and a volume velocity of 0.5 h⁻¹. n-hexane, n-heptane, n-octane and n-nonane were used for this reaction. The unsaturated hydrocarbons formed were found to consist mainly of alkenes. As regards number of carbon atoms, they correspond to the initial alkanes and have double bonds in the positions 2, 3 or 4. The catalyzate of n-hexane was found to contain 1-hexene also, but in much smaller amounts than 2- and 3-hexenes. The catalyzates of n-heptane, n-octane, and n-nonane possibly contain other alkenes in addition to the 2-heptene, 4-octene, and 4-nonene actually found. The quantities contained, however, are so small that they were not detectable in the Raman spectra.

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Composition of the Products of Dehydration
of C₆ - C₉ n-Alkanes Over Aluminum-chromium-
potassium Catalyst

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All catalyzates were found to contain dienes, the structures of which could not yet be established exactly. The structure of the aromatic hydrocarbons formed from n-alkanes becomes more complicated as the molecular weight of the initial alkane increases. n-hexane forms benzene, n-heptane toluene, n-octane mainly xylenes and ethyl benzene as well as lower-boiling aromatic hydrocarbons, benzene and toluene. The aromatic hydrocarbons formed from n-nonane consist mainly of methyl ethyl benzene, trimethyl benzene, and n-propyl- and isopropyl benzenes. Apart from these, the catalyzate contains lower-boiling hydrocarbons, benzene, toluene, and ethyl benzene. There are 5 tables and 5 references: 3 Soviet and 2 British.

ASSOCIATION: Institut organicheskoy khimii im. N. D. Zelinskogo Akademii
nauk SSSR
(Institute of Organic Chemistry imeni N. D. Zelinskogo of the
Academy of Sciences USSR)

SUBMITTED: July 10, 1959

Card 2/2

56488

SOV/20-129-1-35/64

5(3) 5.3300

AUTHORS: Timofeyeva, Ye. A., Shuykin, N. I., Corresponding Member AS USSR,
Plotnikov, Yu. N., Kleymenova, V. M.

TITLE: Dehydrogenation of n-Nonane on an Aluminum-Chromium Catalyst

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 129, Nr 1, pp 128-130
(USSR)ABSTRACT: In connection with previous investigations (Refs 1, 2) the authors wanted to dehydrogenate n-alkanes with higher molecular weight on the catalyst mentioned in the title. Data from publications are very scarce (Ref 3). The investigations were carried out at various temperatures and volume rates. The method described earlier (Ref 2) was applied. The gas formed due to reaction contained 92-97% hydrogen, 1.5-3.5% unsaturated and 1.0-4.5% saturated hydrocarbons. Table 1 and figure 1 show the results. Table 1 shows that with a volume rate of 2.1 h^{-1} the olefin content is increased from 8% to not more than 14-15% if the temperature increases from 400 to 475°. At the same time the content of aromatic hydrocarbons increases considerably, namely from traces to 15-16%. Thus a temperature of 400° is optimum with regard to the selective reaction progress of dehydrogenation. ✓

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Dehydrogenation of n-Nonane on an Aluminum-Chromium Catalyst

SOV/20-129-1-35/64

An increase in volume rate from 2.1 h^{-1} to 4.2 h^{-1} hardly changes the olefin yield; at the same time the content of aromatic hydrocarbons decreases from 15-16% to 10-12%. In order to investigate the composition of unsaturated hydrocarbons the product of catalysis was conducted over silica gel treated with HgCl_2 and hydrogen peroxide (according to A. V. Topchiyev et al. (Ref 4)). Thus the paraffin part of the gas produced and a 95% concentrate of unsaturated hydrocarbons were separated. The latter was analyzed by means of the Raman spectra. It was found that olefins consist of nonene-4 mainly, although the presence of other nonenes may also be possible. The paraffin part seems to consist of pure n-nonene. Isoalkanes with a tertiary carbon atom are missing (Ref 5). Thus the investigation proved the possibility of selectively dehydrogenating n-nonane below a nonene yield of 8-9% and without considerable aromatization reaction. There are 1 figure, 1 table, and 5 references, 4 of which are Soviet.

ASSOCIATION: Institut organicheskoy khimii im. N. D. Zelinskogo Akademii nauk SSSR (Institute of Organic Chemistry imeni N. D. Zelinskogo of the Academy of Sciences, USSR)

SUBMITTED: July 11, 1959
Card 2/2

✓

5 (3), 5 (4)

AUTHORS:

Timofeyeva, Ye. A., Shuykin, N. I.,
Dobrynina, T. P., Kleymenova, V. M.

SOV/62-59-9-16/10

TITLE:

Lifetime of a Catalyst Without Regeneration at the Catalytic
Dehydrogenation of Isopentane

PERIODICAL:

Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk,
1959, Nr 9, pp 1623 - 1626 (USSR)

ABSTRACT:

The present article is the continuation of the investigations of these authors on the dehydrogenization reaction of pentanes on aluminum chromium potassium catalysts. The reaction scheme is described. This showed that the yield of amylenes at higher reaction temperature is independent in a wide range of the volume rate of the initial substance. In the present paper investigation was carried out on the influence on the dehydrogenation reaction of the duration of the operation cycle of the catalyst between regenerations at 500, 527, and 550°. At 500 and 550°, 28 experiments were carried out until the regeneration of the catalyst, and at 527°, 33 experiments. Table 1 contains the indices of the different work cycles. It showed that when the reaction temperature was higher the activity of the catalyst decreased faster. The maximum yield was obtained at 500° in ex-

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Lifetime of a Catalyst Without Regeneration at the
Catalytic Dehydrogenation of Isopentane

SOV/62-59-9-16/40

periment Nr 8. At 527 and 550° the maximum yield was obtained already at experiment Nr 3. The yield was larger at higher temperatures, but decreased faster and it was considerably smaller at the end of the experiment series as when carried out at lower temperatures. This effect was explained by the shielding effect of the large quantities of formed isoprene on the catalyst. The yield of isopentanes is larger at lower temperatures, because side-reactions do not occur at these temperatures. No isoprene forms at 500°. Therefore, it is preferable to repeat the regeneration of the catalysts when using it at higher temperatures (after 1 hour) and to carry out the reactions at high volume velocities (there is a possibility that more initial hydrocarbons are consumed). At 527° regeneration has to take place after 3 hours, and at 500° after 6-8 hours. There are 1 figure, 2 tables, and 3 Soviet references.

ASSOCIATION: Institut organicheskoy khimii im. N. D. Zelinskogo Akademii nauk SSSR (Institute of Organic Chemistry imeni N. D. Zelinskogo of the Academy of Sciences, USSR)

SUBMITTED: December 25, 1957
Card 2/2

5(4)
AUTHORS:

Timofeyeva, Ye. A., Smirnov, V. S., Plotnikov, Yu. N.

TITLE:

Effect of Temperature and Volume Rate on the Dehydrogenation of n-Hexane According to Its Aromatization Conditions

PERIODICAL:

Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk, 1959, Nr 8, pp 1432-1437 (USSR)

ABSTRACT:

As an introduction some methods already known in publications and concerning the aromatization of alkanes are discussed. Special mention is made of Moldavskiy's, Kamusher's and Kobyl'skaya's method (Ref 2). In the present paper the behavior of cyclohexane in the presence of typical dehydrogenation catalysts of the composition Al_2O_3 , Cr_2O_3 , K_2O (90.7 : 5.6 : 3.7 mol%) is investigated. Experimental yields were compared to the equilibria which were determined by thermodynamic calculations. The dehydrogenation of n-hexane was accompanied by aromatization in which much more benzene than olefines was formed. The method used has already been described in reference 6. The refractive index, iodine number, and aromatic hydrocarbon content (according to the method of relative dispersion) were determined in the liquid catalyst. The gas analysis was carried out in a VTI-2 unit. Characteristic data found by the experiments are compiled in tables 1-4.

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SOV/62-59-8-15/42

Effect of Temperature and Volume Rate on the Dehydrogenation of n-Hexane
According to Its Aromatization Conditions

It can be seen from the results that the hexane yield is independent of temperature change and volume rate whereas the benzene yield increases with a mounting temperature but decreases with an increasing volume rate. The thermodynamic calculations carried out show that a maximum of 73% of the amount of cyclohexane corresponding to the state of equilibrium can be obtained. The authors conclude by thanking N. I. Shuykin for his advice and the possibility to carry thru their work in the Laboratory of Organic Catalysis of the Institut organicheskoy khimii AN SSSR (Institute of Organic Chemistry of the Academy of Sciences, USSR). There are 2 figures, 4 tables, and 12 references, 10 of which are Soviet.

ASSOCIATION: Institut organicheskoy khimii im. N. D. Zelinskogo Akademii nauk SSSR
(Institute of Organic Chemistry imeni N. D. Zelinskogo of the Academy of Sciences, USSR)

SUBMITTED: November 14, 1957

Card 2/2

TERYUSHNOV, A.V., prof.; DERYUZHINA, V.G., red.; VIKHRALEYEVA,
T.N., st. nauchn. sotr.; TIMOFEEVA, Ye.A., red.

[Spinning without roving] Bezrovnichnoe priadenie. Mo-
skva, 1963. 31 p. (MIRA 17:5)

1. Moscow. Tsentral'nyy institut nauchno-tekhnicheskoy
informatsii legkoy promyshlennosti.

TIMOFYEVA, Ye.D.

Use of Soviet-produced griseofulvin in the treatment of trichomycoses. Vest. derm. i ven. 38 no.4:50-53 Ap '64.

(MIRA 18:4)

l. Ufimskiy nauchno-issledovatel'skiy kozhno-venerologicheskiy institut (dir. P.N.Shishkin).

TIMOFEYeva, Ye.D.

Methodology for treating microsporosis with griseofulvin.
Vest. derm. i ven. 39 no.4:7-10 Ap '65. (MIRA 19:2)

1. Ufimskiy nauchno-issledovatel'skiy kozhno-venerologicheskiy
institut (dir. P.N. Shishkin, nauchnyy rukovoditel' G.E. Shinskiy,
konsul'tant - prof. A.M. Ariyevich) Ministerstva zdravookhraneniya
RSFSR. Submitted April 22, 1964.

TIMOFEEVA, Ye.D., mladshiy nauchnyy sotrudnik

Treatment of trichomycoses with griseofulvin. Vest.derm. i
ven. no.9:39-42'62. (MINA 16:7)

1. Iz Ufimskogo nauchno-issledovatel'skogo kozhno-venerolo-
gicheskogo instituta (direktor P.N.Shishkin, nauchnyy ruko-
voditel' G.E.Shinskiy).
(GRISEOFULVIN) (HAIR-DISEASES) (MYCOSIS)

TIMOFEYeva, Ye.G.; KALINICHENKO, I.I.; NIKITIN, V.D.; PURTOV, A.I.

Conditions for the preparation of lead metavanadate. Zhur.
neorg.khim. 5 no.5:1168-1170 My '60. (MIRA 13:7)

1. Ural'skiy politekhnicheskiy institut im. S.M.Kirova i
Sverdlovskiy zavod "Khimicheskiye reaktivy."
(Lead vanadate)

TIMOFEEVA, Ye. I.

Modified Khronis operation in ptosis in trachoma. Vest.oft. 32 no.5:39-40
S-0 '53. (MLRA 6:10)

1. Sorochinskaya rayonnaya bol'nitsa.
(Eyelids--Diseases) (Conjunctuvitis, Granular)

PARIYCHUK, M.M., inzhener; TIMOFEEVA, Ye.I., agronom

Model SSM-6 mounted beet seeder for districts of irrigated beet
growing. Sel'khozmashina no. 4:6-8 Ap '54. (MLRA 7:5)

1. Povolzhskaya MIS. (Drill (Agricultural implement))

NOVIKOV, G. A.; TIMOFEEV, Ye. K.

Materials on the ecology of hare in the forest steppe oak groves.
(MIRA 17:7)
Vest. IGU 19 no. 9:26-34 '64.

NOVIKOV, C. A. and TIMOFEEVA, Y. E.

Ecology of roe deer in the steppe oak forests. Zool. zhur. 44
no. 3:442-451 1969
(MIRA 18:8)

In Laboratoriya ekologii pozvonochnykh Biologicheskogo instituta
Leningradskogo gosudarstvennogo universiteta.

NOVIKOV, G.A.; TIMOFEEVA, Ye.K.

Food habits and silvicultural significance of roe deer in the
forest-steppe oak-dominant woods. Biul.Moip.Otd.biol. 69
no.2:39-53 Mr-Ap '64. (MIRA 17:4)

Timofeyeva, Ye. M.

USSR/Physical Chemistry - Surface Phenomena. Adsorption. Chromatography. Ion Exchange, B-13

Abst Journal: Referat Zhur - Khimiya, No 1, 1957, 574

Author: Slisarenko, F. A., and Timofeyeva, Ye. M.

Institution: None

Title: Adsorptive Properties of Discoloring Earths from Saratov Oblast

Original

Periodical: Zh. prikl. khimii, 1956, Vol 29, No 6, 847-850

Abstract: The adsorption of methylene blue in aqueous solutions on various samples of clays and sediments from Saratov Oblast was studied. After shaking the suspension with a solution of the coloring agent, adsorptive equilibrium is reached after 70 minutes. The dependence of adsorption on the concentration follows a Freundlich isotherm. The treatment of the clays with solutions of 0.1-1 N NaOH or HCl restores the charge on the particles and markedly decreases the degree of adsorption. Adsorption is likewise reduced after heat treatment at temperatures higher than 400°, apparently because of the dehydration of the oxide hydrates.

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CIA-RDP86-00513R001755720020-2

TMIOFEYEV, Ye.M.

✓ Adsorptive properties of bleaching earths of the Sverdlovsk

APPROVED FOR RELEASE: 07/16/2001

CIA-RDP86-00513R001755720020-2"

TIMOFEYVA, Ye.M., assistant

Relation of the bleaching capacity of marls to their structure.
Uch. zap. Sar. gos. pedag. inst. no.28:3-9 '57. (MIRA 11:7)
(Volga Valley--Marl) (Castor oil) (Adsorption)

SLISARENKO, F.A., dotsent; TIMOFEEVA, Ye.M., assistant

Refining vegetable oils with the Volga Valley marls. Pt. 1:
Bleaching hydrated and extracted castor oil with the Volga Valley
marls. Uch. zap. Sar. gos. pedag. inst. no.28:10-28 '57.

(MIRA 11:?)

(Castor oil) (Volga Valley--Marl)